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DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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August 16, 1988

Mr. Peter McCallum
Manager, Environmental Quality
Kennecott, Utah Copper
P.O. Box 525
Bingham Canyon, Utah 84006-0525

Dear Mr. McCallum:

Re: Conditional Approval of Pine Canyon Reclamation Plan, Kennecott, Utah Copper, Anaconda Carr Fork Project, M/045/004, Tooele County, Utah

Thank you for your recent proposal for reclamation of the Pine Canyon portion of the old Anaconda Carr Fork Project, received July 5, 1988 by the Division. The Pine Canyon property was purchased by Kennecott from Anaconda Minerals Company on September 12, 1985. Anaconda completed its reclamation of the adjacent, lower canyon mining-related disturbances in April, 1987. Active mining operations have remained suspended to date.

Overall, the reclamation proposal is favorable. However, we have outlined a number of questions which will require clarification with additional supportive information prior to issuance of final approval of this plan.

We have formatted our comments to address, by section and page number, the items as outlined in your July 5th submittal. The questions are detailed below.

CONDITIONS TO FINAL APPROVAL:

Section 4.8.3, Potential mine water discharge, p. 37, section 4.9.2, Shaft/portal closure, p. 42.

Kennecott has indicated that the flooding rate of the underground workings is decreasing and a discharge from the Pine Canyon shafts is unlikely. However, the plan describes two generic scenarios to handle a mine water discharge should it become necessary.

If the mine water level cannot be kept below the collar of the Carr Fork production shaft by pumping from the Carr Fork exhaust shaft next to the Bingham Pit, how will discharge be controlled "... from the Carr Fork production shaft such that erosion of the channels in the canyon would be prevented and the water quality of the discharge would meet State discharge limitations?" The plan indicates that the sub-collar of the production shaft has a poured-in-place, 3-foot thick concrete seal. How will mine water be discharged from this shaft?

Please describe the method(s) presently utilized to monitor mine water inflow (flooding) of the Carr Fork Mine. What is the expected water quality of the mine water? The Division is principally concerned with the potential short and long term physical impacts that this discharge may have on the completed reclamation and revegetation efforts.

Appendix A, 1977 NOI Application, Pine Canyon Tunnel mine water discharge analysis.

Water is draining out of Pine Canyon Tunnel into a concrete flume. The water then flows down the north side of Pine Canyon to a discharge point near the mouth of the canyon. The only water quality reference in the plan for this continuous discharge is from one water quality analysis dated January 15, 1977.

The Division requests copies of any recent (or historic) water quality analysis reports which may confirm that the discharge water quality after 10 years is still within acceptable standards. Are quality samples and flow rates routinely taken? If so, please indicate the sampling/monitoring location(s) on the reclamation map.

Are analytical reports required by the State Bureau of Water Pollution Control? Is a UPDES discharge permit required and/or approved for this discharge point? If flow records are available, please provide copies of measured discharge rates as well. Has the flow volume varied significantly? Is there a seasonal variation? What are the likely future projections of discharge rate and quality? How will the discharge/water build-up be handled upon final closure and reclamation of the tunnel/portal?

Sections 1.4, 4.4.3 and 4.4.4, Mine facilities to remain, pp. 3 & 18, Sec. 4.7.2, Reclamation channel alignment design, p. 33:

It is the Division's opinion that the current reclamation plan should be designed to permit reasonable access for eventual decommissioning of the remaining surface facilities and reclamation of the disturbed areas with minimal impact to any areas previously reclaimed.

How will eventual final reclamation of the facilities proposed to remain "operational" affect/impact the results of this reclamation project? Are there areas proposed for reclamation which will have to be redisturbed to complete the final reclamation of the remaining facilities? Please identify any of these areas.

Is it the operator's intent to reclaim the concrete flumes when the remainder of the "operational" surface facilities are eventually decommissioned and reclaimed? It is suggested that the flume from the Pine Canyon Tunnel be buried and the tunnel drainage (quality dependent) be rerouted into the main channel. This drainage could aid and support the reestablishment of riparian vegetation along the canyon bottom. The undisturbed area runoff from the adjacent side canyons, which is now intercepted by this flume, could then be redirected into Pine Canyon creek. These structures should be reclaimed unless a suitable long term postmining use is found acceptable and long term stability of the flumes is assured.

Section 4.2.1, Original mine and mill facilities, p. 9.

The operator lists as additional facilities, culinary water pipelines from the Adamson and West Dip Tunnels. If these facilities are to remain operative for an indefinite period, then their location and interconnection with the other project facilities should be clearly identified on appropriate reclamation maps. The four (4) water wells should also be clearly labeled on the reclamation maps.

Section 4.7.3, Channel Protection Measures, p. 36.

The reclamation plan describes the use of large rocks or uniform concrete blocks at the ends of the concrete flumes to provide energy dissipation in the stream channel. This general commitment sounds reasonable, but the Division requests more specific design and construction details of the proposed energy dissipators to be included as part of the reclamation plan.

General Comments.

1. The reclamation proposal indicates on page 1 of the executive summary, that a sum total of 130.5 acres comprises the disturbed area in Pine Canyon. Please indicate the disturbed acreage associated with the facilities to remain in an operational mode upon completion of this phase of the reclamation plan (i.e., unreclaimed acreage).

2. According to a letter from Anaconda, in our files, dated August 14, 1986, the Reclamation Permit was to have been transferred to Kennecott. Anaconda apparently sent the forms to Kennecott (Form MR-10), but Kennecott failed to follow through with the permit transfer.

   As a condition to final approval of the Pine Canyon reclamation plan, the Division requests a copy of that portion of the purchase agreement between Kennecott and Anaconda which assigns all permitting and reclamation responsibilities for this portion of the minesite to Kennecott.

   The Division suggests that the operator amend the mining and reclamation plan for the Bingham Canyon mine to include the Pine Canyon mining facilities proposed to remain in an "operational" mode. This will effectively eliminate the need for Kennecott to submit a separate final reclamation proposal and reclamation surety for this project area.

3. Plates I-3 and I-4 show the location of the tailings pipeline adjacent to the stream channel. Reclamation of this structure is not mentioned in the reclamation plan. It is assumed that this pipeline has been (or will be) permanently plugged? If an underground break occurred in the pipeline, could its close proximity to the stream channel create a potential conduit to direct subsurface alluvial drainage away from Pine Canyon Creek to discharge elsewhere?

Section 4.10, Reclamation Monitoring, p. 43.

The plan indicates that an inspection of the debris basin will be performed during the monitoring period. Where is the debris basin located? Is this basin for disposing of mining-related debris, or is it proposed to control debris flows transported down the stream channel?

Sec. 4.4.2, Ore and Waste Stockpile, p. 18:

The operator points out that sulfide-bearing materials, located on the upper pad, the production shaft pad and the coarse ore pad, will be covered with 12 inches of substitute soil material.

> What is the concentration of the sulfide-bearing material (how acidic are they)? Depending on the answer to this question, it may be that twelve (12) inches of topsoil material is not enough cover. If highly acidic, the Division suggests placing a minimum of two (2) feet of substitute cover material over the acidic material prior to initiating revegetation efforts.

The Variance requested for not revegetating the mine rock waste dump, located west of the production shaft, was granted in a letter dated August 4, 1981 and signed by James Smith. The variance request for this area is therefore confirmed as previously approved.

This concludes our technical comments on this reclamation plan. The Division will proceed with issuance of final approval for this plan upon successful resolution of the concerns outlined above. Please contact me or D. Wayne Hedberg of my staff should you have questions or concerns with this review.

Sincerely,

Lowell P. Braxton, Administrator
Mineral Resource Development and
Reclamation Program

dwh/jb
cc: Don Osler, BWPC
Bryan Buck, JBR
Holland Shepherd, DOGM
3/10-14